

299-W22-69 (C4969) Log Data Report

Borehole Information:

| | | | | | |
|-------------------------------------|------------------------------|----------------------------------|--|--------------------------------|-----------------------|
| Borehole: 299-W22-69 (C4969) | | Site: 200-UP-1 | | | |
| Coordinates (WA St Plane) | | GWL¹ (ft): 237 | | GWL Date: 2/3/06 | |
| North Not available | East Not available | Drill Date 02/06 | Ground Level Elevation Not available | Total Depth (ft) 376 | Type Becker |

Casing Information:

| Casing Type | Stickup (ft) | Outer Diameter (in.) | Inside Diameter (in.) | Thickness (in.) | Top (ft) | Bottom (ft) |
|-------------|--------------|----------------------|-----------------------|-----------------|----------|-------------|
| Steel | 4.0 | 6.24 | 6.0 | 0.12 | 4.0 | 381 |
| Steel | | 9.0 | 8.0 | 0.50 | | 381 |

Borehole Notes:

The Becker drilling system uses a dual-wall casing. Air is forced down the annulus and cuttings are returned inside the inner casing. Total wall thickness is 0.620 in., increasing to 1.115 in. at the casing joints that occur at 10-ft intervals. The casing dimensions are derived from published values for Becker drill casing. Prior to logging, the borehole was drilled to a depth of 358 ft. During the first day of logging, sand was encountered at 323 ft. The borehole was subsequently drilled down to 376 ft, and was then logged to that depth on the third day of logging. Logging data acquisition is referenced to the ground surface.

Logging Equipment Information:

| | | |
|--|--|--|
| Logging System: Gamma 1E | | Type: SGLS (70%) SN: 34TP40587A |
| Effective Calibration Date: 01/10/06 | Calibration Reference: DOE/EM-GJ1106-2006 | |
| Logging Procedure: MAC-HGLP 1.6.5, Rev. 0 | | |

Spectral Gamma Logging System (SGLS) Log Run Information:

| Log Run | 1 | 2 Repeat | 3 | 4 | 5 Repeat |
|----------------------|-----------|-----------|-----------|-----------|-----------|
| Date | 02/03/06 | 02/06/06 | 02/06/06 | 02/09/06 | 02/09/06 |
| Logging Engineer | McClellan | McClellan | McClellan | McClellan | McClellan |
| Start Depth (ft) | 323.0' | 180.0' | 148.0' | 376.0' | 321.0' |
| Finish Depth (ft) | 149.0' | 149.0' | 1.0' | 322.0' | 316.0' |
| Count Time (sec) | NA | NA | NA | NA | NA |
| Live/Real | R | R | R | R | R |
| Shield (Y/N) | NA | NA | NA | NA | NA |
| Sample interval (ft) | 1.0 ft | 1.0 ft | 1.0 ft | 1.0 ft | 1.0 ft |
| ft/min | 1.0 ft | 1.0 ft | 1.0 ft | 1.0 ft | 1.0 ft |

| Log Run | 1 | 2 Repeat | 3 | 4 | 5 Repeat |
|--------------------------|--------------------------------|--|-------------------------------|---|-----------------|
| Pre-Verification | AE155CAB | AE156CAB | AE156CAB | AE159CAB | AE159CAB |
| Start File | AE155000 | AE156000 | AE156033 | AE159000 | AE159055 |
| Finish File | AE155174 | AE156032 | AE156180 | AE159054 | AE159060 |
| Post-Verification | AE155CAA | AE156CAA | AE156CAA | AE159CAA | AE159CAA |
| Depth Return Error (in.) | Low 1.0 | NA | 0.0 | NA | 0.0 |
| Comments | No fine-gain adjustments made. | Repeat section. No fine-gain adjustments made. | No fine-gain adjustment made. | Fine-gain adjustment made at bottom of borehole before logging. | Repeat section. |

Logging Operation Notes:

Pre- and post-survey verification measurements were acquired in the Amersham verifier, SN 115.
A centralizer was installed on the sonde.
Maximum borehole depth logged was 376.0 ft.

Analysis Notes:

| | | | | | |
|-----------------|------|--------------|----------|-------------------|------------------------|
| Analyst: | Pope | Date: | 07/11/06 | Reference: | GJO-HGLP 1.6.3, Rev. 0 |
|-----------------|------|--------------|----------|-------------------|------------------------|

Pre-run and post-run verifications for the logging system were performed before and after data acquisition. Acceptance criteria were met for the verification spectra, with the exception of the resolution (full-width at half-maximum) for the 1461 and 2614 keV gamma lines in the pre-run spectrum on day 2 of logging. Both values are about 1% above the upper control limits. Examination of the spectrum indicates no anomalies, and the spectrum is provisionally accepted.

Two spectral data files were irrecoverably corrupted: AE156023.CHN and AE159061.CHN, corresponding to depths at 158 and 315 ft. Both were from repeat logs, and therefore do not represent a complete loss of data for a given depth. The file corresponding to depth 0.0 ft is missing and can therefore not be included in the analysis.

Casing thickness (additive for the 6- and 9-in. casings) is approximately 0.620 in. The combined thickness at casing joints is 1.115 in. This thickness results in a significant reduction in gamma activity detection as the detector passes by a casing joint. However, it is not practical to correct individual data points for the effect of casing joints. The influence of the thick joints is apparent on the total gamma where reduced count rates are exhibited at approximately 10-ft depth intervals.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to extract the total gamma count rate from individual files. No corrections are made for dead time, casing, or water.

Log Plot Notes:

Log plots are provided for the total gamma and dead time. A repeat log section is also presented.

Results and Interpretations:

A decrease in gamma activity occurs at each casing joint, where the increase in wall thickness results in greater attenuation of gamma activity. No anomalous gamma activity was observed. This observation suggests no significant concentrations of man-made radionuclides.

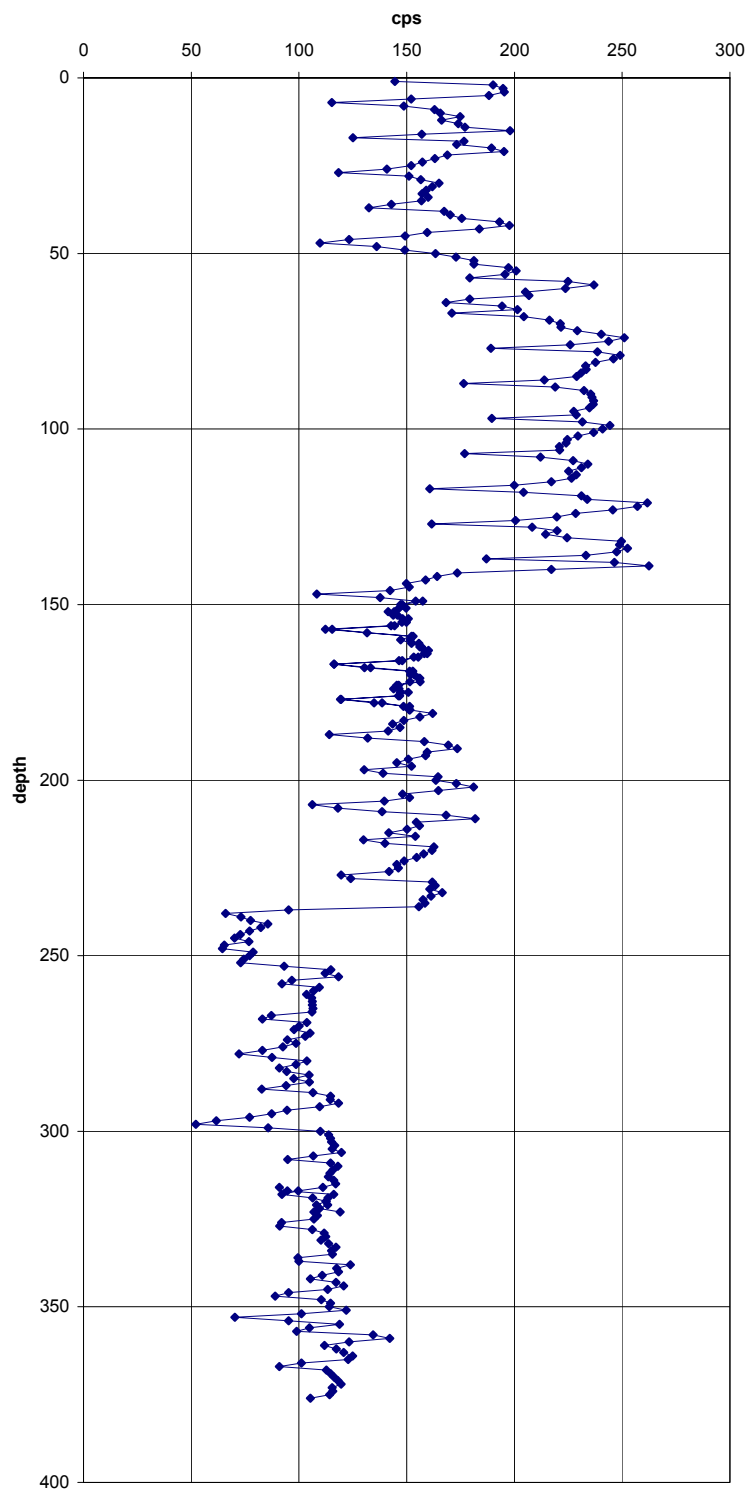
The repeat section from 149.0 to 180.0 ft indicates good agreement for total-gamma count rate. The repeat section from 321.0 to 316.0 ft was logged after additional drilling occurred. The additional drilling changed the depths of the casing joints, such that the repeat data and original data do not correspond well.

¹ GWL – groundwater level

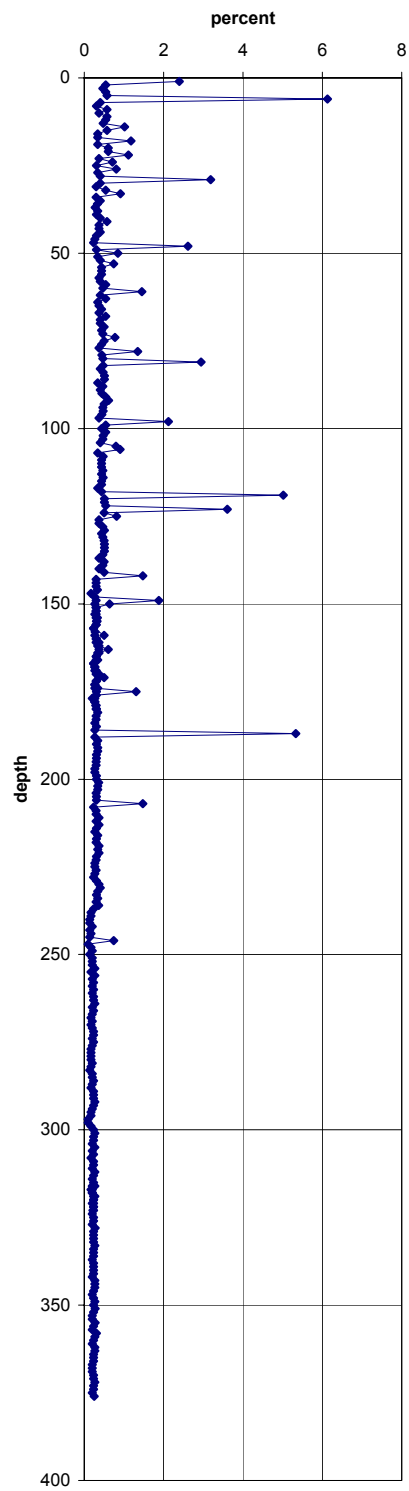
² N/A – not applicable

299-W22-69 (C4969)

Total Gamma



Dead Time



299-W22-69 (C4969)

Repeat Section

